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1. Document ID: EP 277003 A, WO 8805792 A, AU 8812945 A, NO 8804295 A, DK 8805489 A, PT 86671 A, FI 8804486 A, JP 01501950 W, BR 8805025 A, HU 52791 T, IL 85098 A, US 5278119 A, US 5407884 A, US 5483014 A, CA 1338687 C, RU 2074770 C1, FI 101478 B1, CA 1340136 C, JP 2880176 B2

L14: Entry 1 of 1

File: DWPI

Aug 3, 1988

DERWENT-ACC-NO: 1988-214391

DERWENT-WEEK: 200403

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TITLE: New olefin polymerisation catalyst prodn. - by reaction with cpd. having bulky boron contg. anion and proton donating cation

INVENTOR: HLATKY, G G; TURNER, H W

PATENT-ASSIGNEE:

ASSIGNEE	CODE
EXXON CHEM PATENTS INC	ESSO
HLATKY G G	HLATI
TURNER H W	TURNI

PRIORITY-DATA: 1987US-0133052 (December 21, 1987), 1987US-0011471 (January 30, 1987), 1992US-0875165 (April 28, 1992), 1993US-0104226 (August 9, 1993), 1993US-0123400 (September 17, 1993), 1994US-0301163 (September 6, 1994)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
EP 277003 A	August 3, 1988	E	017	
WO 8805792 A	August 11, 1988	E	000	
AU 8812945 A	August 24, 1988		000	
NO 8804295 A	December 5, 1988		000	
DK 8805489 A	November 30, 1988		000	
PT 86671 A	January 30, 1989		000	
FI 8804486 A	September 29, 1988		000	
JP 01501950 W	July 6, 1989		000	
BR 8805025 A	October 17, 1989		000	
HU 52791 T	August 28, 1990		000	
IL 85098 A	March 29, 1992		000	
US 5278119 A	January 11, 1994		012	C08F004/16
US 5407884 A	April 18, 1995		013	C08F004/16

<u>US 5483014 A</u>	January 9, 1996	013	C08F004/16
<u>CA 1338687 C</u>	October 29, 1996	000	C07F007/00
<u>RU 2074770 C1</u>	March 10, 1997	012	B01J037/00
<u>FI 101478 B1</u>	June 30, 1998	000	C08F004/643
<u>CA 1340136 C</u>	November 17, 1998	000	C07F017/00
<u>JP 2880176 B2</u>	April 5, 1999	017	C08F004/643

DESIGNATED-STATES: AT BE DE ES FR GB IT LU NL SE AU BR DK FI HU JP KR NO SU

CITED-DOCUMENTS: 1.Jnl.Ref; EP 200351 ; US 3231593

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
EP 277003A	January 27, 1988	1988EP-0300698	
WO 8805792A	January 27, 1988	1988WO-US00222	
JP 01501950W	January 27, 1988	1988JP-0501758	
US 5278119A	January 30, 1987	1987US-0011471	CIP of
US 5278119A	December 21, 1987	1987US-0133052	Cont of
US 5278119A	April 28, 1992	1992US-0875165	
US 5407884A	January 30, 1987	1987US-0011471	CIP of
US 5407884A	December 21, 1987	1987US-0133052	Cont of
US 5407884A	April 28, 1992	1992US-0875165	Div ex
US 5407884A	August 9, 1993	1993US-0104226	
US 5407884A		US 5278119	Div ex
US 5483014A	January 30, 1987	1987US-0011471	CIP of
US 5483014A	December 21, 1987	1987US-0133052	Cont of
US 5483014A	April 28, 1992	1992US-0875165	Div ex
US 5483014A	September 17, 1993	1993US-0123400	Cont of
US 5483014A	September 6, 1994	1994US-0301163	
US 5483014A		US 5278119	Div ex
CA 1338687C	January 19, 1988	1988CA-0556847	
RU 2074770C1	January 27, 1988	1988SU-4356746	
RU 2074770C1	January 27, 1988	1988WO-US00222	
FI 101478B1	January 27, 1988	1988WO-US00222	
FI 101478B1	September 29, 1988	1988FI-0004486	
FI 101478B1		FI 8804486	Previous Publ.
CA 1340136C	January 19, 1988	1988CA-0556847	Div ex
CA 1340136C	April 16, 1996	1996CA-0617051	
JP 2880176B2	January 27, 1988	1988JP-0501758	
JP 2880176B2	January 27, 1988	1988WO-US00222	
JP 2880176B2		JP 1501950	Previous Publ.
JP 2880176B2		WO 8805792	Based on

B1 INT-CL (IPC): B01J 31/14; B01J 31/22; B01J 37/00; C07F 5/02; C07F 7/00; C07F 17/00; C08F 4/16; C08F 4/64; C08F 4/643; C08F 4/76; C08F 10/00; C08F 36/00; C08F 36/02; C08F 38/00; C08F 210/16

RELATED-ACC-NO: 1988-214392;1991-095859 ;1991-207512 ;1991-267107 ;1991-

310541 ;1991-324534 ;1992-034288 ;1992-041524 ;1992-113677 ;1992-115756 ;1993-126094 ;1993-227280 ;1993-235174 ;1993-296769 ;1993-385678 ;1994-007465 ;1994-135088 ;1994-135521 ;1994-316958 ;1995-052017 ;1995-053329 ;1995-074654 ;1995-108452 ;1995-161139 ;1995-200350 ;1995-242002 ;1995-312734 ;1996-187758 ;1997-118313 ;1997-235231 ;1998-178536 ;1999-573807 ;1999-573808 ;2000-655536 ;2001-463603 ;2001-534861 ;2001-601142 ;2002-739438 ;2004-019732 ;2004-030640

ABSTRACTED-PUB-NO: EP 277003A

BASIC-ABSTRACT:

Catalyst prodn. comprises reacting, in a solvent or diluent, (1) at least one bis(cyclopentadienyl) metal cpd. (I), contg. at least one substit. able to react with a proton and having Ti, Zr or Hf as the metal, with (2) at least one cpd. (II) contg. a proton-donating cation and an anion, contg. many B atoms, which is bulky, labile and able to stabilise the metal cation formed in the reaction. The catalysts (A) recovered contain either direct reaction prods. of (I) and (II), or their decompn. prods.

Cpds. of formula (A-Cp)MX₁B' (III) are new. M = Ti, Zr or Hf; A-Cp = (Cp)(Cp') or Cp-A'-Cp'; Cp and Cp' = opt. substd. cyclopentadienyl; A' = covalent bridge contg. Gp. IVa atom; X₁ = hydride, hydrocarbyl or organometalloid radical; B' = ((CX)a(BX')^mX''b)c- or (((CX₃)a'(BX₄)^m(X₅)b'c'-)2Mn+)d-; X, X' and X'' are as X₁ or halo; a, b and c = 0 or integers, but c is not zero, and a+b+c = 2, 4, 6 or 8; m = 5-22, or 34; M = transition metal; X₃, X₄ and X₅ are as X; a' and b' = 0 or integer; c' = 2 or more; a'+b'+c' = 4, 6 or 8; m' = 6-12; n is defined by 2c'-n=d, with d an integer at least 7.

USE/ADVANTAGE - (A) are stable catalysts for polymerising 2-18C 1-olefins, diolefins and/or acetylenes, opt. together with other monomers. They provide better control of polymer mol.wt. (and its distribution); are not subject to ion-equilibrium reversal; are less pyrophoric than Ziegler-Natta catalysts and require no cocatalyst.

ABSTRACTED-PUB-NO:

US 5407884A

EQUIVALENT-ABSTRACTS:

An ionic polymerisation catalyst comprises a bis(cyclopentadienyl)-substd. gp. IV B metal cation and a compatible non-coordinating anion comprising B atoms which is stable, bulky and labile. An example of an anion source is bis(tri(n-butyl)ammonium dodecaborate and the gp. IV B metal cation is e.g. bis(indenyl) zirconium dimethyl, bis(indenyl)hafnium dimethyl etc.

USE/ADVANTAGE - The catalyst is useful for the polymerisation of olefins, diolefins and/or acetylenically unsatd. monomers. The improved catalyst is not subject to ion equiv. reversal and permits better control of the polymer prod. molecular wt. and molecular wt. distribution.

US 5483014A

A method for polymerising olefin, diolefin and/or acetylenically unsaturated monomers containing from 2 to about 18 carbon atoms either alone or in combination with one or more other monomers comprises

(a) contacting at a temperature within the range from about -100 deg. C. to about 300 deg. C. and at a pressure within the range from about 0 to about 45,000 psig. said monomers in a suitable solvent or diluent with catalyst prepared by combining at least one first compound consisting of a bis(cyclopentadienyl) metal compound, said metal being selected from the Group consisting titanium (Ti), zirconium (Zr)

and hafnium (Hf), and at least one second compound comprising a cation capable of donating a proton to one or more substituents on said metal compound and a bulky, labile anion an ionic polymerization catalyst including a cation derived from a hydrolysable bis(cyclopentadienyl) metal compound of a group IV-B metal, or a catalytically active decomposition product thereof, and a compatible noncoordinating anion comprising a plurality of boron atoms and sufficiently labile to permit displacement by an olefin and/or diolefin and/or acetylenically unsaturated monomer during polymerization;

(b) continuing the contacting of step (a) for a sufficient period of time to polymerize at least a portion of said monomers;

(c) recovering a polymer product.

CHOSEN-DRAWING: Dwg.0/0 Dwg.0/0 Dwg.0/0

TITLE-TERMS: NEW OLEFIN POLYMERISE CATALYST PRODUCE REACT COMPOUND BULK BORON CONTAIN ANION PROTON DONATING CATION

ADDL-INDEXING-TERMS:

METAL CYCLO PENTA DIENYL DI

DERWENT-CLASS: A12 A17 A60 E12

CPI-CODES: A02-A; A02-A06; A02-A06B; A02-A06D; A02-A07A; A04-A02; A04-B01A; A04-G01A; E05-C; E05-L01; E05-L02; E05-M; E05-N; E10-B04A; E10-B04D;

CHEMICAL-CODES:

Chemical Indexing M3 *01*

Fragmentation Code

A332 A350 A382 A422 A540 A672 A922 A923 A940 B514
B614 B720 B743 B744 B760 B770 B780 B831 B832 B833
C101 C550 C720 C801 C802 C804 C805 C806 C807 D011
D012 F011 F018 G010 G011 G012 G013 G019 G020 G021
G022 G029 G030 G031 G032 G033 G034 G035 G036 G037
G039 G040 G050 G111 G112 G113 G211 G212 G299 G543
G551 G553 G563 G573 G583 G599 H600 H608 H609 H661
H662 H663 H681 H682 H683 H684 H685 H686 H689 H724
H730 M113 M115 M116 M119 M121 M123 M126 M129 M132
M135 M139 M144 M149 M210 M211 M212 M213 M214 M215
M216 M220 M221 M222 M223 M224 M225 M226 M231 M232
M233 M240 M250 M281 M282 M283 M311 M312 M313 M314
M315 M316 M320 M321 M331 M332 M333 M334 M342 M343
M344 M351 M353 M361 M391 M411 M510 M520 M521 M530
M531 M532 M533 M534 M542 M720 M770 M771 M903 N253
N261 N284 N511 N512 N513 N514 N521 N522 N523 N524
N525 Q121

Ring Index

11569 66314 66315 66316 66317

Registry Numbers

3102R 1678D

Chemical Indexing M3 *02*

Fragmentation Code

A424 A425 A426 A427 A428 A429 A679 A940 B605 B720
B741 B742 B743 B744 B751 B752 B760 B780 B803 B833
B840 C000 C017 C035 C100 C101 C106 C800 C802 C805

C806 C807 D000 D040 H600 H602 H608 H609 H621 H622
H623 H681 H682 H683 H684 H686 H689 M210 M211 M212
M213 M214 M215 M216 M220 M221 M222 M223 M224 M225
M226 M231 M232 M233 M240 M250 M280 M281 M282 M283
M311 M312 M313 M314 M315 M316 M320 M321 M322 M323
M331 M332 M333 M334 M342 M343 M344 M361 M391 M392
M393 M411 M417 M511 M520 M530 M540 M720 M770 M771
M903 N253 N261 N284 N511 N512 N513 N514 N521 N522
N523 N524 N525 Q121
Registry Numbers
3102R 1678D

UNLINKED-DERWENT-REGISTRY-NUMBERS: 0345U

POLYMER-MULTIPUNCH-CODES-AND-KEY-SERIALS:

Key Serials: 0017 0034 3003 0204 0205 0211 0214 0224 0073 0076 0079 0082 0085 0088
0091 0094 0097 0100 0103 0106 0109 0112 0115 0118 0121 0124 0127 0130 0133 0136
0148 0151 0154 0172 0175 0178 0181 0227 2051 2061 2062 2066 3208 2070 2093 2116
2318 2585 2586 0232 0233 3151 0239 0241 0242 0247 3153 3154 0248 0250 0251 0255
0257 0258 0262 0264 0265 0269 0271 0272 0276 0278 0279 0290 0292 0293 1093 1095
1096 1100 1102 1103 3067 3069 3070 1114 1116 1117 1184 1186 1187 1191 1193 1194
1205 1207 1208 1212 1214 1215 2122 2123

Multipunch Codes: 014 02- 034 041 046 07& 07- 08- 08& 09- 09& 10& 10- 13- 15& 17&
17- 18& 18- 19& 19- 20& 20- 228 229 260 273 278 285 291 296 316 347 351 355 42- 44&
575 58& 583 586 589 590 679 682 688 689 691 693 014 02- 034 041 046 047 049 050 051
052 053 054 07& 07- 08& 08- 09& 09- 10& 10- 117 122 123 125 126 127 13& 13- 134 15&
17& 17- 174 18& 18- 19& 19- 20& 20- 228 229 260 27& 273 278 28& 285 291 296 316 347
351 355 42- 44& 51& 575 58& 583 586 589 590 679 682 688 689 691 693 698 723 726

SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C1988-095576

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